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# ON INVERTEBRATES FROM THE EOCENE OF MISSISSIPPI AND ALABAMA.

BY OTTO MEYER. Ph. D.

In the illustrations to the following paper, the figures of some insufficiently known species of the Southern Old-Tertiary are included. Notes on these are given. The species referred to are mostly small ones. All the mentioned material has been collected by me and is in my collection.

**Odostomia Boettgeri** n. sp. Pl. III fig. 4.

Subulate, polished. Nucleus sinistral, vertical, partly hidden, Adult whorls eight, with an impressed line below the suture. Suture distinct. Mouth subelliptical. Inner lip with a strong, nearly horizontal fold. At some distance from the outer lip there are within six raised revolving lines.

*Vicksburg, Miss. "Lower Vicksburgian."*

**Turbonilla major** n. sp. Pl. III fig. 3.

Nucleus sinistral, its axis horizontal, its volutions separate. Adult whorls many, subconvex, covered with strong transverse ribs and densely spirally striated. The spirals do not extend over the ribs. Mouth subquadrangular. Inner lips with a strong oblique fold. Base spirally striated. *Jackson, Miss. Rare.*

The more common *Turbonilla* in Jackson is a form which I should rather put to *Turbonilla neglecta* Mr. than to the above species. Compared with *T. major* it is much smaller and more slender and the spiral striae are scarcely distinct, otherwise it is very similar.

## DENTITEREBRA n. gen.

Turreted; transversely ribbed. Aperture narrow, terminating in a short anterior canal. Inner lip callous, very slightly striate. Outer lip crenulated internally, sinous posteriorly. Base striated.

On account of its mouth this genus is probably to be placed among the Columbellidae, in which family it is conspicuous by its turreted spire and transverse ribs. It is perhaps to be considered a subgenus of *Columbella.* If this is not the right position, it may belong to the Pleurotomidae.

**Dentiterebra prima** n. sp. Pl. III fig. 2.

The pointed nucleus consists of four volutions. Five adult whorls are covered by strong transverse ribs, eighteen on the body whorl; the surface else being smooth. Base with strong revolving lines, which are perceptible on the callus of the inner lip. The inner lip is else without striae or granulations. Crenulations of the outer lip six. Suture distinct, impressed. *Claiborne, Ala.*

I found only the figured specimen. It has the appearance of a young *Terebra.*

**Pleurotoma Aldrichi** n. sp. Pl. III fig. 7, 7a, 7b.

The nucleus consists of one and a half smooth inflated embryonic whorls. Adult whorls six; they are convex, raised below the suture, covered by transverse ribs and elevated spiral lines. Of the spiral lines those on the middle of the whorl are the strongest. The sinus is above the middle of the whorl. Aperture less than one third of the shell, with rather straight canal. The young shell shows a simple outer lip and a smooth, but not callous inner lip. The older the shell the more deposit on the inner lip it has. Old specimens apparently have strong folds within the outer lip.

*Jackson, Miss.*

I found eight specimens. The specimens, 7 b, has longitudinal folds within the outer lips, the uppermost of which is the strongest; besides it is somewhat stouter than the others. I consider it, however, as an old specimen of the same species, for the surface, though partially skinned, shows the same ornamentation, the characteristic nucleus is the same, and one of the other specimens shows an indication of the upper fold within the outer lip.

**Tornatella volutata** n. sp. Pl. III fig. 11.

Oval-elongate. The nucleus consists of one and a half smooth volutions, the first volution standing almost vertical and being partly hidden. Five adult whorls are slightly convex and covered with impressed revolving lines. These lines are slightly punctuate; number about six on each whorl, the body whorl excepted, where they are numerous and towards the base increase in distinctness and become closer. Mouth rather narrow. Outer lip sharp. Inner lip with a strong fold below the middle, and slightly covered by callus. Suture impressed.

*Vicksburg, Miss. "Higher Vicksburgian."*

I found only the figured specimen. The species is considerably cylindrical and approaches the subgenus *Actaeonidea* Gabb, from the Tertiary of the West Indies. It lacks, however, the anterior truncation of the collumella of *Actaeonidea*.

**Unicardium? eocenense** n. sp. Pl. III fig. 14, 14 a.

Small, tumid, solid. Margin subquadrangular, rounded anteriorly, truncate posteriorly. Beak turned anteriorly, before it a small cordate lunule. Lunular edge in front of the beak somewhat expanded. Below the beak one tubercular cardinal tooth (left valve), lateral teeth nearly obsolete. Anterior muscular impression elongated elliptical, posterior impression cordate-elliptical. Pallial impression not entire. Inside rough. Margin entire. Surface with indistinct concentric impressed lines, crossed by more distinct radiating lines. This ornamentation is wanting on the umboneal part and more distinct near the margin. The radiating lines are slightly more distinct on the posterior slope. *Red Bluff, Miss.*

The only found specimen, a left valve, shows three sinuations of the pallial line behind.—I have little doubt that this species belongs either to *Unicardium* d'Orbigny, or *Fimbriella* Stoliczka, or is to be placed in their neighbourhood. These two genera, however, are not known from the Tertiary formation, and if the Red Bluff form should prove to be a different and new genus I propose the name of *Cordiula* for it.

### MIKROLA n. gen.

Minute, subtrigonal, inaequilateral. Anterior side rounded, posterior side attenuated. Ligament in a trigonal pit below the beak. In the right valve this pit is lodged between two compressed cardinal teeth. Left valve without distinctly developed teeth. Muscular impressions oval? Pallial line sinuated behind. Surface concentrically ribbed. Margin entire.

At first sight the genus has much resemblance to *Spheniopsis*, Sandberger, especially the left valve. But the dentition of the right valve is entirely different, and the genus may even not belong to the *Myidae*. I cannot discover any gaping of the valves.

**Mikrola mississippiensis** n. sp. Pl. III fig. 16, 16a, 16b.

Beaks almost obsolete. The concentric ribs of the surface end at the posterior terminal slope. Umbonial part smooth.

*Red Bluff, Miss.*

I found three double-valves of this species, which varies very much in the size and number of the concentric ribs. While one of the specimens shows only three large and distant concentric ribs, another one is covered by about nine ribs.

**Turritella carinata** H. C. Lea. Pl. III fig. 1, 1a.

*Turritella carinata* H. C. Lea; Am. Journ. Science vol. XL, Jan. 1841. p 96, pl. 1 fig. 10.

Fig. 1 represents the largest specimen which I have from Claiborne and fig. 1a is a specimen which shows two of the round embryonic whorls. The name of this species is not preoccupied by *Turritella carinata* I. Lea, because this latter species is apparently identical with a form previously described.

**Eulima lugubris** Lea. sp. Pl. III fig. 8.

*Pasithea lugubris* Lea; I. Lea. Contrib. to Geology 1833, p. 101, pl. 4, fig. 81.

**Eulima aciculata,** Lea. sp. Pl. III. fig. 5.

*Pasithea aciculata* Lea; I. Lea. Contrib. to Geology, 1833, p. 102, pl. 4, fig. 82.

The specimen which I figure is from Jackson, Miss. It is apparently identical with Lea's Claiborne species.

**Pasithea guttula** Lea. Pl. III fig. 6.

*Pasithea guttula* Lea; I. Lea. Contrib. to Geology 1833, p. 104, pl. 4, fig. 86.

**Cylichna Dekayi,** Lea. sp. (var?) Pl. III fig.10.

*Bulla Dekayi* Lea; I. Lea. Contrib. to Geology, 1833, p, 200, pl. 6, fig. 215.

The specimen which I figure, is from Jackson Miss. It is perhaps to be considered a variety of the Claiborne species.

**Tornatina crassiplica** Conr. sp. Pl. III fig. 9.

*Bulla crassiplica* Conr. Journ. Ac. Philad. I, 2nd Ser., Pl. 113, pl. 11, fig. 5.

**Ringicula mississippiensis** Conr. Pl. III fig. 12.

*Ringicula mississippiensis* Conr. Journ. Ac. Philad. I, 2nd Ser. p. 117; Pl. 18, fig. 36.

**Dentalium subcompressum** Mr. Pl. III fig. 13, 13a.

*D. subcompressum* Mr.; Am. Journ. Sci. 1885, XXIX p. 462. *D. subcompressum* Mr,; Bull. 1. Geol. Surv. Ala. 1886, p. 64, Pl. 3, fig. 3, 3a.

Fig. 13 represents a specimen with complete posterior end, showing also in this respect the great similarity of this species to *Dentalium compressum* Mr. from the German Oligocene.

**Tellina eburneopsis?** Conr. Pl. III fig. 15a, 15b.

? *Tellina eburneopsis* Conr. Am. Journ. Conch. 1865, p. 138, Pl. 10, fig. 17.

Conrad describes this species from the so-called locality "Entreprise, Miss." The specimen, which I figure, is from Jackson, Miss. Fig. 15b gives the profile of the posterior side, showing the emargination at the posterior fold.

## NOTES.

The following mistake is to be corrected. I described a specimen from Claiborne as "*Crucibulum antiquum*" (Bull. 1, Geol. Surv. Ala. 1886, p. 68 pl. 1 fig. 11). Having recently carefully cleaned the outside of this specimen it proved to be a *Balanus* with preserved operculum.

In an article "Beitrag zur kenntniss des Alttertiaers von Mississippi und Alabama"* I have given (p. 16, 17) a list of Foraminifera of the eocene of Mississippi and Alabama, which I collected and which were determined by Mr. A. Woodward. The following species, also collected by me and determined by Mr. Woodward, have to be added to this list.

*Clavulina cylindrica* Hantken; Matthews Landing, Ala.; Claiborne, Ala.; Jackson, Miss.; Wautubbee, Miss.

*Cristellaria calcar* Linné sp.; Matthews Landing, Ala.; Jackson, Miss.

*Cristellaria cultrata* Montfort sp,; Vicksburg, Miss. "Lower Vicksburgian."

*Textularia agglutinans* d'Orb.; Jackson, Miss.

*Polymorphina oblonga* d'Orb.; Jackson, Miss.

*Polymorphina problema* d'Orb.; Jackson, Miss.

*Miliolina agglutinans* d'Orb.; sp; Claiborne, Ala.

*Truncatulina lobatula* Walker and Jacob sp.; Jackson, Miss.

*Truncatulina dutemplei* d'Orb.; Jackson, Miss.

*Pulvinulina canariensis?* d'Orb; Jackson, Miss.

*Nonionina depressula* Walker and Jacob sp.; Wautubbee, Miss.

## EXPLANATION OF PLATE III.

Fig. 1. *Turritella carinata* H. C. Lea, nat. size; Claiborne, Ala.
Fig. 1a. " " " " showing two embryonic whorls; Claiborne, Ala.
Fig. 2. *Dentiterebra prima* n. gen. et n. sp; Claiborne, Ala.
Fig. 3. *Turbonilla major* n. sp.; Jackson, Miss.
Fig. 4. *Odostomia Boettgeri* n. sp.; Vicksburg, Miss.
Fig. 5. *Eulima aciculata* Lea. sp.; Jackson, Miss.
Fig. 6. *Pasithea guttula* Lea; Claiborne, Ala.
Fig. 7. 7, 7a, 7b. *Pleurotoma Aldrichi* n. sp.; Jackson, Miss.
Fig. 8. *Eulima lugubris* Lea; Claiborne, Ala.
Fig. 9. *Tornatina crassiplica* Conr. sp.; Vicksburg, Miss.

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*Jahresber. d. Senckenbergischen Naturforschenden Gesellschaft, Frankfurt a. M. 1886. 2 plates.

Fig. 10. *Cylichna Dekayi* Lea. sp. (var?) Jackson, Miss.

Fig. 11. *Tornatella volutata* n. sp.; Vicksburg, Miss.

Fig. 12. *Ringicula mississippiensis* Conr.; Vicksburg, Miss. "Lower Vicksburgian."

Fig. 13. *Dentalium subcompressum* Mr.; Vicksburg, Miss.

Fig. 13a. The same specimen, view of posterior end.

Fig. 14, 14a. *Unicardium? eocenense* n. sp.; Red Bluff, Miss.

Fig. 15a, 15b. *Tellina eburneopsis?* Conr.; Jackson, Miss.

Fig. 16, 16a, 16a'. *Mikrola mississippiensis* n. gen. et. n. sp.; Red Bluff, Miss.

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## MARCH 8.

Mr. CHARLES MORRIS in the chair.

Fifteen persons present.

The deaths of Jos. Wilson M. D. and Bernard Persh, members, were announced.

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## MARCH 15.

Mr. JOHN H. REDFIELD in the chair.

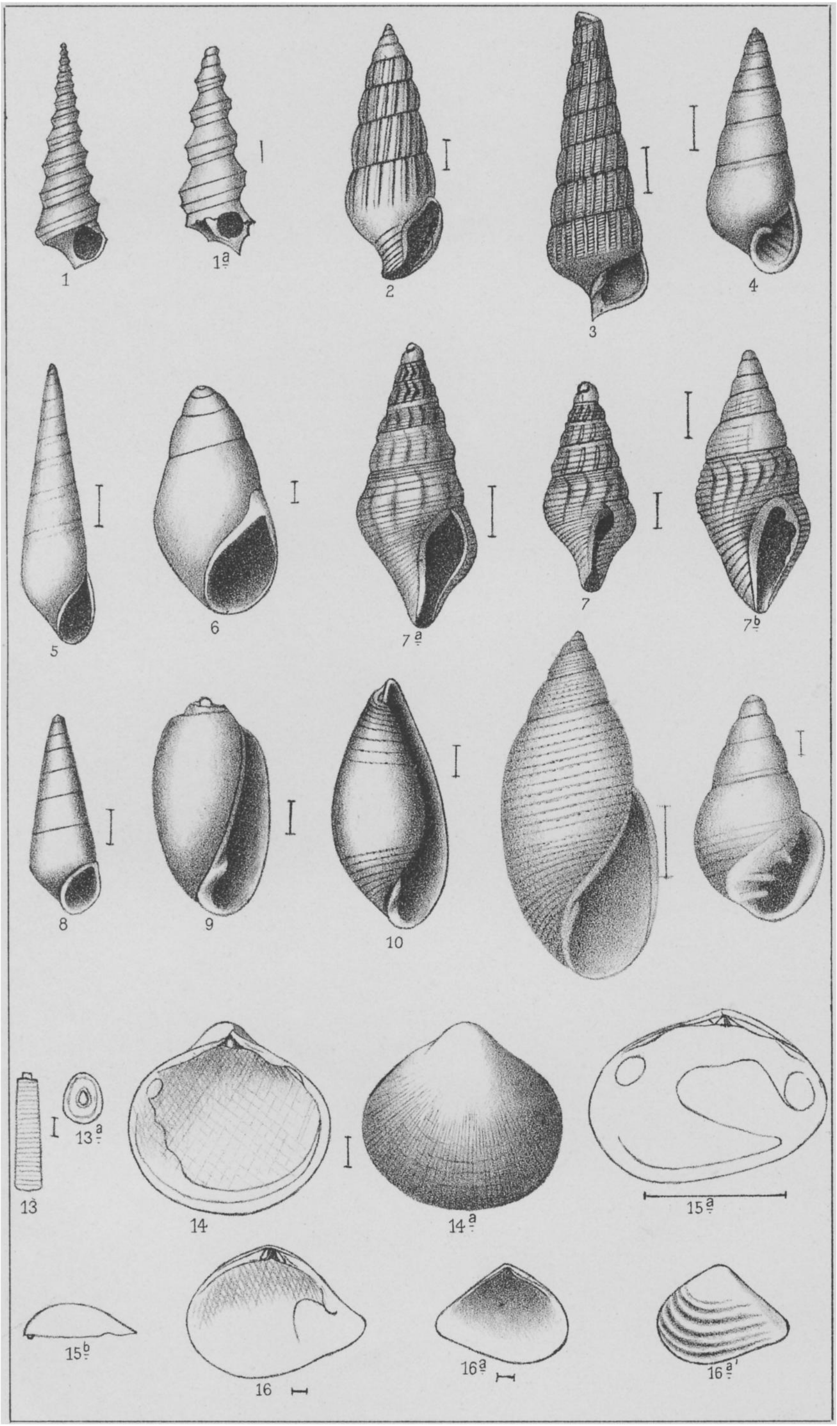
Seventeen persons present.

Papers under the following titles were presented for publication:—

"A List of the Carices of Pennsylvania." By Thomas C. Porter.

"A Prodrome of a Memoir on Animal Locomotion." By Harrison Allen M. D.

*On the First and Second Sets of Hair Germs Developed in the Skin of Fœtal Cats.*—Prof. Ryder remarked that in a fœtal Kitten, three and one-half inches in length, which he had examined, the germs of certain hair follicles in the skin were more prominent than the great majority of other hair germs. These larger hair germs were especially obvious on the back and on the top of the head, where they formed very slight superficial elevations of the epidermis. Along the middle region of the back and head, these more prominent hair germs formed linear series or rows, which seemed to correspond somewhat in position to the arrangement of the stripes of color on the back of the adults, as seen in the Ocelot and the black and grey-striped variety of the domestic cat or grimalkin. On the sides and on the limbs the linear arrangement of these larger hair germs disappeared entirely, and they were distributed in an irregular manner, pretty



O. Meyer, del.

Meyer, Eocene Invertebrates.